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TO: J. L. MYERS

FACILITIES FOR COATING BERL SADDLES PER SPECIFICATION
221-341.86-51

This memo will list pertinent information regarding facilities for applying the silver nitrate coating to Berl saddles, precautions to take, quantities involved, and safety aspects. The information has been obtained from Specification 221-341.86-51, and from conversations with H. B. Garrison and W. B. Watkins.

Approximately 200 cu. ft. of Berl saddles will have to be dipped. The above quantity will be divided up to provide for the needs of two (2) reactors in 221F, two (2) in 221H and on (1) spare.¹

Six hundred pounds (600 lbs.)² of silver nitrate will be ordered by Construction in 200F Area.

The silver nitrate shall be used in a twenty (20) molal solution - which is accomplished by dissolving 3.4 lb. of silver nitrate in each pound of water.

It was suggested that approximately 20 gal. of the silver nitrate be maintained in the stainless steel dipping drum which should have a capacity of approximately 50 gal. A stainless steel drum of similar size should be placed adjacent to the dipping drum and should be used for catching the drip from the coated saddles during the draining period.

The solution in the dipping drum should be heated to the 180 deg. F. by any suitable means, but it is suggested that a pancake steam coil be used. The saddles, in a suitable basket, are to be dipped for five (5) minutes in the 180 deg. F. silver nitrate solution; lifted above the surface of the solution for a short time to drain most of the liquid off the saddles, and then transferred in the basket to the drain drum for more complete drainage.

The dipping baskets should have a capacity of 2 or 3 cu. ft. and should be equipped with long handles for two (2) man operation. The baskets should be made of stainless steel heavy screen, perforated sheet or expanded sheet and should have stainless steel handles. It is suggested that three baskets be made to assure a smoothly flowing operation.

- NOTE: (1) Two spares will be prepared.
(2) 400 lbs. of AgNO₃ will be purchased.

After the parts have been coated and drained they shall be dumped carefully into a suitable stainless steel container and stored until a sufficient quantity has been accumulated for the drying operation. The container should have a cover which should be in place (except when coated saddles are being added) during the storage period to prevent damage to the parts by light. The storage container may also be used for a container during the drying operation, at which time the cover should be removed.

The drying period should be all day or overnight at 250 deg. F. Avoid overheating since temperatures over 190 deg. C. will cause damage. Presence of sulfur compounds in furnace atmosphere will cause blackening of the silver nitrate coated parts - which is not acceptable. It is recommended that test pieces be coated and then dried in the furnace in the prescribed manner to check for possibility of damage by residual sulfur compounds from previous usage of the furnace.

Saddles for immediate use should be carefully packed in suitable canvas bags or containers. The bags should be shipped to 200F Area in a large box or shipping drums which are relatively light tight.

Care should be used in handling of the coated saddles to avoid breakage of the parts. The parts may be shoveled if care is used. A clean carbon steel shovel is suitable. The saddles of different sizes should be segregated prior to dipping and kept in separate bags.

The coated saddles for use in 200H Area and for spares should be packed in light tight boxes or shipping drums which have been lined with polythene sheeting and should be sealed to prevent entry of light or dirt.

The silver nitrate dipping solution remaining after the treatment of the saddles should be placed in a stainless steel can, sealed, labeled and stored for future use. Also, any silver nitrate which has not been dissolved should be placed in additional stainless steel cans, sealed, labeled, and stored for future use.

Since silver nitrate dust is dangerous when inhaled, ingested or allowed to penetrate an open wound, adequate safety precautions must be taken to protect personnel. The dipping, drying and storage of large quantities of the saddles will present a problem of control of the silver nitrate dust.

Contact of silver nitrate with the skin causes blackening which is not dangerous but which would be unpopular with personnel handling the parts. The dipping baskets should be so designed as to allow the men to stand back away from splash and splatter.

The finished parts should have a metallic gray color.

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WBW:ll

W. C. Rice, Jr.

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